

AN0051323

Apart from warning of dangerous weather phenomena the USSR Hydrometeorological Service has broadly developed work for actively influencing them. The most interesting example in this sphere is the work on combating hail and protecting the sowing of valuable agricultural crops. In 1969, using methods developed by some of our institutes, the USSR Hydrometeorological Service organizations waged a struggle against hail in the Kabardino-Balkar Autonomous Republic, Georgia, Krasnodar Kray, and Moldavia. The total area of the territory which was protected against damage done by hail was approximately 2.3 million hectares. This work produced savings of approximately 30 million rubles.

In 1969 the USSR Hydrometeorological Service carried out enormous work on the technical reequipping of a network of stations and on broad implementation of automobile means of hydrometeorological observations. Construction and equipping of four major regional hydrometeorological centers is underway. In Moscow, Novosibirsk, Khabarovsk, and Tashkent. In 1970 a great amount of work has been carried out in Belorussia where, for the first time in the country, an automated system of hydrometeorological observations is being introduced along with processing data and introducing an information service. Special radar stations for the observation of cloud cover, 50 automatic meteorological stations, and many other automatic devices and installations have been set up on Belorussian territory. This republic's territory will be the first stage of the USSR Hydrometeorological Service's automated system. Subsequent introduction of similar installations on USSR territory will make it possible to create our country's automated hydrometeorological system in the course of the next 10 years.

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USSR

GOLYSHEV, L. K.

"The Structural Theory of Computing Machines (Operator Diagrams)"

Strukturnaya Teoriya Tsifrovyykh Mashin. (Operatornye Skhemy) [English Version Above], Moscow, Energiya Press, 1971, 391 pages (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V667 K by V. Mikheyev).

Translation: Problems are studied of construction of operator systems for electronic computers. The book consists of the following Chapters. Chapter 1. The Subject and Content of the Structural Theory of Digital Machines; Chapter 2. Structural Components of Automata for Realization of Operator-Fixed Algorithms; Chapter 3. Structural Components of Automata for Realization of Arbitrary Algorithms; Chapter 4. Representation of Switching Functions; Chapter 5. Apparatus for Synthesis of Circuit Operators without Memory Elements; Chapter 6. Apparatus for Synthesis of Circuit Operators with Memory; Chapter 7. Representation of Basic Circuit Operators; Chapter 8. Arithmetic Principles of Construction of Digital Computers; Chapter 9. Realization of Elementary Operations on Words; Chapter 10. Realization of Arithmetic Operations; Chapter 11. Automata for Realization of Numerical

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USSR

GOLYSHEV, L. K., Strukturnaya Teoriya Tsifrovyykh Mashin. (Operatornye Skhemy), Moscow, Energiya Press, 1971, 391 pages.

Algorithms; Chapter 12. Control by Instructions in the Computer; Chapter 13. Elements of Multiprogramming Structures; Chapter 14. Elements of Combination of Devices and Realization of Multiprogramming.

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AP9053077

UR 0289

PRIMARY SOURCE: Izvestiya Sibirskogo Otdeleniya, AN SSSR,
Seriya Khimicheskikh Nauk, Nr 12(162), Nr 5,
pp 3-7

S. I. Golyshev,
V. N. Ljubimov, I. A. Tikhomirov

ISOTOPE EFFECTS IN THE ELECTROMIGRATION
OF TIN (II) IONS IN MOLTEN SALT SnCl_2

The value of mass effect determined as

$$\mu = \frac{\Delta u}{u} / \frac{\Delta m}{m},$$

was found experimentally for tin isotopes in the electromigration of tin (II) ions in molten salt SnCl_2 . In the temperature interval from 340 to 590°C this value can be represented by an empirical expression $\mu = -0.069[1 - 0.0003(T - 340)]$. For the salt SnCl_2 which has layer lattice this value is in a good accord with the data obtained in an other paper [3].

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USSR

UDC 548.735.46

GOLYSHEV, V. M., SEMONOV, V. I., and BELOV, N. V., Institute of Crystallography,
USSR Academy of Sciences

"Symmetry of Functions Separating the Structure From the Patterson Distribution"

Moscow, Kristallografiya, Vol 16, No 4, Jul-Aug 71, pp 703-707

Abstract: The authors have compiled tables of symmetry groups of functions separating the second rank as a function of symmetry of functions of interatomic vectors and type of displacement vector. They show that the separation function, which is constructed by using vectors of a fixed elementary atom of the structure up to all other atoms associated with it by the elements of the group symmetry, possesses a symmetry that is no less than the symmetry of the Fedorov crystal group. Table 1 lists the symmetry of separation functions of the second rank: triclinic, monoclinic, and rhombic symmetry groups of the Patterson function. Tables 2 and 3 give the same functions of second rank, respectively, for tetragonal and hexagonal symmetry groups. Table 4 lists the cubic symmetry groups for the Patterson function of the same rank of separation functions. The article contains 4 tables and a bibliography of 6 titles.

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Radiobiology

USSR

UDC 616-008.9-001.28-092.9-074

GOLYSHEV, Ye. P. and FEDOROVA, T. A., Institute of Biophysics, Ministry of Health USSR, Moscow

"Biochemical Evaluation of the Level of Early Postradiation Cell Destruction in Irradiated Rats"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 5, 1973, pp 44-46

Abstract: The radioisotopes orotic acid-2-C¹⁴ and thymidine-2-C¹⁴ were used to determine the content of DNA metabolites in irradiated rats. This value directly reflects the level of cell destruction within 8 hours of irradiation. About 160 million cells are destroyed in the normal rat in 8 hours. Exposure to 100, 300, and 900 r increased this number, according to the above parameter, to 270,000,000, 420,000,000 and 1 billion or 170, 260, and 630% of the normal level, respectively.

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USSR

UDC 632.95

GOLYSHIN, I. M., MONOVA, V. I., KLIMKINA, L. P., IVANOVA, S. N., MEL'NIKOV, N. N., KHUSNETDINOVA, F. I., SHVETSOV-SHILOVSKIY, N. I., SAMYSHKINA, M. A., and BOLONINA, YE. I.

"An Antiseptic"

USSR Author's Certificate No 355008, Div B, filed 11 Jan 71, published 13 Nov 72 (from RZh-Khimiya, No 14, 25 Jul 73, abstract No 14N616 P by T. A. Belyayeva)

Translation: It is proposed that 4,5,6-trichlorobenzoxazolinone-2 (I) be used as an antiseptic for nonmetallic materials, and at the same time is a bactericide, which considerably extends the sphere of its action. Compound I is used in a 2-2.5% concentration to control mold, wood-rotting and wood-discoloring fungi.

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USSR

UDC 632.95

KORNOUKHOVA, M. V., LOMAKINA, V. I., MANDEL'BAUM, Ya. A., GAR, K. A.,
GOLYSHIN, N. M., BOKAREV, Ye. M., FEDOSEYENKO, L. G., and BODROVA, M. R.

"Reaction of Thiophosphate Hydrazides with Sulfochlorides"

V sb. Khim. sredstva zashchity rast. (Chemical Protection of Plants -- collection of works), No 2, Moscow, 1972, pp 194-199 (from RZh-Khimiya, No 22, 25 Nov 73, Abstract No 22N567 by L. V. Razvodovskaya)

Translation: Compounds with the general formula $R^1(RO)P(S)NHNH_2SO_2R^2$ (I) and $R^3XP(S)(NHNH_2SO_2R^2)_2$ (II) (R = alkyl, R^1 = aryloxy, NHR , NR_2 , R^2 2 R^3 = alkyl, aryl, X = O or NH) are obtained from the reaction of $R^1(RO)P(S)NHNH_2$ (III) or $R^3XP(S)(NHNH_2)_2$ (IV) with $ClSO_2R^2$. Examples. (1) 0.03 mole of Et_3N solution in 30 ml of C_6H_6 at 20° is added to 0.03 mole of III (R = Et, R^1 = PhO) and 0.03 mole of Et_3N in 70 ml of C_6H_6 . The mixture is mixed for 5 hours at 35 to 40° and the sediment is filtered off. The filtrate is washed, dried, and the solvent distilled off to obtain I (R = R^2 = Et, R^1 = PhO, yield 66%, melting point $91-3^\circ$). I is obtained in a similar fashion (R , R^1 , yield in %, melting point in $^\circ C$ or n_D^{25} and d_4^{25} are given): Me, iso-PrNH, Me, 70, 1.5204, 1.2964; 1/2

USSR

KORNOUKHOVA, M. V., et al., Khim. sredstva zashchity rast, No 2, 1972, pp 194-199

Et, iso-PrNH, Ph, 56, 117-8; Et, iso-BuNH, Me, 84, 1.505, 1.1974; Ph, iso-PrNH, Et, 68, 66-8; Et, Me₂N, PhMe, 30, 78-80; Et, Et₂N, Et, 50, 1.5148, 1.2035; Et, Et₂N, PhMe, 55, 1.5350, 1.1756; Et, PhO, Ph, 55, 72-4. (2) 0.05 mole of PhSO₂Cl at 20° is added to a solution of 0.05 mole of IV (R³X = PhO) and 0.05 mole of Et₃N in 100 ml of alcohol. The mixture is mixed for 6 hours at 20° and 8 hours at 60-70°; the alcohol is distilled off in part. The sediment is filtered off and the filtrate evaporated to obtain II (R²=R³=Ph, X = O), yield 56%, melting point 168-70°. II is obtained in a similar fashion (R³X, R² yield in %, melting point in °C are given): EtO, Et, 50, 158-60, EtO, Ph, 30, 102-5; PhO, Me, 45, 173-5; PhNH, Me, 46, -. I and II have fungicidal and weak contact insecticidal activity.

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USSR

UDC 632.95

TROPIN, B. P., BEZUGLYY, S. F., BOROVIKOVA, L. N., GOLYSHIN, N. M., ZAIKIN, B. A., KRASNOVA, M. V., and MIKHULYA, S. A.

"Method to Decrease Evaporation of Pesticide Droplets"

USSR Author's Certificate No 33913, filed 13 Oct 69, published 6 May 72
(from Referativnyy Zhurnal -- Khimiya, Svodnyy Tom (I, L-S), No 1(II), 1973,
Abstract No LN467P by T. A. Belyayeva)

Translation: In order to decrease evaporation of pesticide droplets during aerial application (from airplane), 0.1-5% of antievaporating agent is added to pesticide. A mixture consisting of high-molecular weight synthetic aliphatic alcohol fractions C₁₀ - C₁₆, C₁₀ - C₁₈, C₁₀ - C₂₀, nonionogenic surface-active substances (OP-4, OP-7, OP-10) and calcium dodecylbenzene-sulfonate can be used as antievaporating agent. Example. 85-93% primary aliphatic alcohols C₁₀ - C₁₆ or C₁₀ - C₁₈, 7-15% OP-7 or OP-10 are mixed to prepare the antievaporating agent (AE). One part of antievaporating agent is emulsified with 2-3 parts of water, the obtained emulsion is mixed with a suspensoid containing 8 parts of finely-dispersed wetting agent of copper oxychloride (90% strength), and water is added to make 100 parts. The emulsion-suspensoid prepared in this manner is used for aerial spraying of

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USSR

TROPIN, B. P., et al., USSR Author's Certificate No 333913, filed 13 Oct 63, published 6 May 72

plants in the amount of 50 liters/ha. The fungicide layer on plants in this case is usually more dense than without the addition of AE. Data are presented on preparation of spraying mixtures consisting of different fungicides and insecticides with AE, as well as evaporation rates of different size of droplets with AE-3P and AE-4P and without them, both under laboratory and field conditions (spraying of sugar beets).

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USSR

UDC 632.95

HEL'NIKOV, N. N., SOKOLOVA, YE. M., TRUKOV, P. P., VOLOKHONICH, S. D.,
DYMEZHAKOVA, G. K., GOLYSHIN, N. M., ABLENTSEV, V. I., URSATSKIS, R. S.,
FEDOSYENKO, L. G., ZAIMIN, B. A., DVURIZHERSTOV, M. G., VISHEVETSKAYA, A. N.,
ORLOV, S. I., ZAVIZION, A. P., and TALASH, A. I.

"Polycarbazin"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection of works), vyp 1, Moscow, 1970, pp 95-104 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N503 by T. A. Belyayeva)

Translation: The effectiveness of polycarbazin (I) on apple scab and grapevine mildew equals that of zineb (II) and polyan-combi, while on cherry-fruit gray rot it equals Bonleaux liquid (III) (1 percent), but is ahead of II. I equals II and III for Clasterosporium infection of the cherry plum and tomato macrosporiosis. The decisive factor which determines the length of action of I is precipitation, which washes the preparation off plants.

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USSR

UDC 632.95

MANDEL'BAUM, YA. A., SOYFER, R. S., PEDOSEYENKO, L. G., GOLYSNIN, N. M.,
MEL'NIKOV, N. N.

"A Fungicide"

USSR Author's Certificate No 243998, filed 10 Jul 67, published 2 Nov 71
(from RZh-Khimiya, No 11, Jun 72, Abstract No 11N442)

Translation: O-Aryl S,S-di-(R-alkylcarbamoylmethyl) trithiophosphates (I)
are used for disinfecting seeds (cereal grains) against rust and mold fungi.
In a concentration of 0.003%, compound I is 100% effective in suppressing
growth of Botrytis cinerea, Fusarium nonifforme, Aspergillus niger and other
pathogenic fungi. The disinfectant is nontoxic for plants in a dose of 2 kg
per ton of wheat seeds and 4 kg per ton of oat seeds.

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USSR

UDC 632.95

PYATHOVA, YU. B., GOLUBEVA, V. A., GOLYSHIN, N. M., UKRAINETIS, N. S.,
ABELENTSEV, V. I., FEDOSSENKO, L. G., VISHNEVSKAYA, A. M., PUSTOVOYTOVA, V. I.,
and DVUKHSHERSTOV, M. G.

"Editone"

Khim. sredstva zashchity rast. (Chemical Means of Protecting Plants --
collection of works), Issue 1-M, 1970, pp 129-134 (Referativnyy Zhurnal --
Khimiya, No 10, (II), 1972, Abstract No 10H550 by T. A. Belyayeva)

Translation: Investigation of editone -- 3,3'-ethylene-bis-4,6-dimethyl-
tetrahydro-1,3,5-thiadiazin-2-one (I) -- in laboratory conditions in vitro
showed that I is equivalent in fungicidal property to Phygon and offers no
threat to green plants. The effectiveness of I in countering apple scab,
grapevine mildew, cherry-plum Clasterosporium, monilial blight, grey mold
of cherry trees, and Macrosporium in tomatoes is equal to or exceeds the
effectiveness of zineb and copper oxychloride (concentration 0.25-0.125%)
and of Bordeaux mixture in 1% concentration. I is not effective in combatting
powdery mildew.

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USSR

UDC 632.95

GOLYSHIN, N. M., FEDOSEYENKO, L. G., UKRAINETIS, N. S., ABELINTESEV, V. I.,
and SOLOV'YEVA, G. V.

"Use of a Combined Preparation of Copper Oxychloride and Zineb"

V sb. Khim. sredstva zashchity rast. (Chemical Agents for Plant Protection --
collection of works), vyp 1, Moscow, 1970, pp 110-115 (from RZh-Khimiya,
No 11, Jun 72, Abstract No 11N428)

Translation: Mixtures of copper oxychloride and zineb in ratios of 1:1.5, 1:6
and 4:1 freshly prepared immediately before spraying had greater effectiveness
in controlling apple tree mange and grape mildew than did the components
applied separately. The most effective was a mixture with a ratio of 1:1.5.
A mixture prepared with the same ratio of components as in Cuprosan Super
D was just as effective in field tests as the latter.

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USSR

UDC 632.95

VOLODKOVICH, S. D., ANDREYEVA, YE. I., GOLYSHIN, N. M., MONOVA, V. I., KAPLAN, G. I., PRONCHENKO, T. S., USKANOV, M. G., ABELENTSEV, V. I., DVOYCHENKOVA, E. A., and SKAZKINA, T. P.

"Bromtan"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection of works), vyp 1, Moscow, 1970, pp 116-129 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N501 by T. A. Belyayeva)

Translation: The preparation bromtan ($\text{BrCCl}_2\text{CHBrCH}_2\text{CH}_2\text{CH}_2\text{Cl}$) (I) is being tested as a soil fungicide and antiseptic for nonmetallic materials. I is as effective as carbathion in the control of melon fusarial wilt. I in a concentration of 0.8 percent is equivalent to DNOC in an 0.6 percent concentration with respect to hibernating forms of the causative agent of apple scab and brown spot. I is active in the control of cotton root rot and wilt at a consumption rate of 100-100 kg/ha.

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USSR

UDC 632.95

~~GOLYSHIN, N. M.~~, ABELENTSEV, V. I., DVUKHSHERSTOV, M. G., MEL'NIROV, N. N.,
VOLODKOVICH, S. D., TRUNOV, P. P., DYMSHAKOVA, G. M., NOVIKOVA, V. A.

"Fungicide Mix"

USSR Author's Certificate No 250600, filed 28 Mar 68, published 16 Jul 71 (from
RZh-Khimiya, No 6 (II), Jun 72, Abstract No 6N624)

Translation: Ethylenethiuramdisulfide (13-40%) is added to a fungicide
mix containing ethylenebisdithiocarbamates of Zn (36-55%) and Mn (20-35%)
for simultaneous control of several plant diseases. The preparation can be
used for preplant treatment of the seed of bean and vegetable crops with con-
sumption norms of 6-10 grams/kg of feed.

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1/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--EFFECTIVENESS OF THE USE OF DITHIOCARBAMATES TO COMBAT THE
PERONOSPOROSIS OF TOBACCO IN VARIOUS PHASES OF SEEDLING FORMATION -U-
AUTHOR-(03)-ABELENTSEV, V.I., GOLYSHIN, N.M., DVUKHSHERSTOV, M.G.

CCOUNTRY OF INFO--USSR

SOURCE--KHIM. SEL. KHOZ. 1970, 8(2), 117-18

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--THIOCARBAMATE, PLANT DISEASE, DISEASE CONTROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAHE--2600/1375

STEP NO--UR/0394/70/008/002/0117/0118

CIRC ACCESSION NO--AP0125023

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125023

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. MANEB IN 0.05PERCENT AQ. SOLN. USED ON TOBACCO SPROUTS AND UP TO 0.25PERCENT ON SEEDLINGS WAS EFFECTIVE AGAINST PERONOSPORA TABACINA. ZINEB, POLYCARBAZINE, AND POLYRAM IN 0.25PERCENT AQ. SOLNS. WERE EFFECTIVE ONLY IN THE LATE PERIOD OF SEEDLING GROWTH. FACILITY: VSES. NAUCH.-ISSLED. INST. KHIM. SREDSTV ZASHCH. RAST., MOSCOW, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--GAMMA RAY SPECTRA RESULTING FROM THE CAPTURE OF THERMAL NEUTRONS BY
ZINC 64, ZINC 66, ZINC 67, AND ZINC 68 -U-
AUTHOR-(05)-BARCHUK, I.F., BAZAVOV, D.A., BELYKH, G.V., GOLYSHKIN, V.I.,
MURZIN, A.V.
COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(5), 934-41

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--THERMAL NEUTRON, GAMMA RAY, SPECTRUM, ZINC ISOTOPE, PARTICLE
CAPTURE, SEMICONDUCTOR DETECTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3008/0582

STEP NO--UR/0367/70/011/005/0934/0941

CIRC ACCESSION NO--AP0137667

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137667

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HARD PART OF GAMMA RAY SPECTRA RESULTING FROM THE CAPTURE OF THERMAL N BY PRIME 64, PRIME66, PRIME67, PRIME 67 ZN ISOTOPES WAS STUDIED BY USING A SEMICONDUCTOR GE(LI) DETECTOR. ENERGIES AND INTENSITIES OF GAMMA LINES WITHIN THE GAMMA SPECTRA RANGE MEASURED ARE DETD. TRANSITION SCHEMES ARE COMPILED BASED ON THE DATA OBTAINED. A STRONG DISCREPANCY IS FOUND BETWEEN THE VALUES OF SPECTROSCOPIC FACTORS FOR P LEVELS OBSERVED IN THE REACTION (D,P), AND THE PROBABILITY OF EL TRANSITIONS FROM THE CAPTURE STATE TO THESE LEVELS IN THE (N,GAMMA) REACTION. IN PRIME69 ZN THE MOST INTENSIVE TRANSITIONS FROM THE CAPTURE STATE ARE THOSE TO THE LEVELS WHICH ARE ABSENT IN THE OTHER REACTIONS. FACILITY: INST. FIZ., KIEV, USSR.

UNCLASSIFIED

Stress Analysis and Stability Studies

USSR

UDC 620.10

BIDERMAN, V. L., Doctor of Technical Sciences, Professor,
GOMAN, A. M., Aspirant, SUKHOVA, N. A., Candidate of Technical
Sciences, Docent, Moscow Higher Technical School imeni N. E.
Bauman)

"Determination of the Stresses and Dislocations in a Ring of
Incompressible Material With Mixed Boundary Conditions"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Mashinostroyeniye,
No 12, 1970, pp 5-8

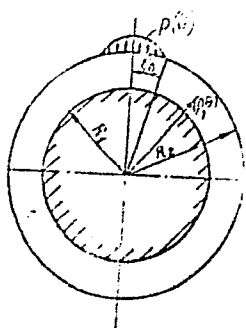
Abstract: The article deals with the solution of a problem of
two-dimensional deformation for a ring of incompressible material,
loaded along the external contour by a radial compressive load
 $p(\theta)$ on the sector $-\theta_0 \leq \theta \leq \theta_0$ and rigidly fastened along the
internal contour. The solution to the problem is sought in
functions of the complex variable $\phi(z)$ and $\psi(z)$. For the case
of /page 5 a/ the obtained relationships of stresses and dis-
locations were computed on a digital electronic computer. The

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USSR

BIDERMAN, V. L., et al, Izvestiya Vysshykh Uchebnykh Zavedeniy, Mashinostroyeniye, No 12, 1970, pp 5-8

calculation results for $R = 0.5$ and $\theta_0 = 0.2$ are represented graphically. 3 figures, 2 bibliographic entries.



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USSR

Corrosion

UDC 669.14.018.293:621.792,
.053:620.143

VEYNGARTEN, A. M., GOMAN, G. M., GOLOVCHENKO, V. S., KLIMOVA, V. A., and
SITALOV, V. P.

"Corrosion of Hull Steel Weldments"

Leningrad, Sudostroyeniye, No 6, Jun 73, pp 40-43

Abstract: The influence of the thermal cycle of weldments on the corrosion resistance of shipbuilding steels was investigated on butted specimens of 09G2, 10KHSND, and 4S standard hull steels in rapid-flowing sea water over a period of 1000 hrs. Various methods and welding practices were applied to determine the influence of the character of the thermal effect and of the cooling rate. The investigation results are discussed by reference to diagrams showing the heating and cooling curves in the thermal influence zone of 09G2 steel, the corrosion dependences on the welding energy and the cooling rate, and the corrosion resistance dependence on the condition of the burning off beading weld. The main factors affecting the corrosion resistance are the cooling rate on welding (according to the running welding energy in cal/cm) and the character of structural conversion of steel. At 4500-5000 cal/cm running energy, the resistance of 09G2 steel

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USSR

VEYNGARTEN, A. A., et al., Sudostroyeniye, No 6, Jun 73, pp 40-43

and 4S steel in the thermal influence zone is the same as that of the initial material. To avoid the development of selective corrosion in the thermal influence zone, welding with higher running energies or the use of burning off beads is recommended. Four figures, one table, four bibliographic references.

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Acc. Nr.:

AP0046866

Ref. Code: UR0122

USSR

UDC 621.824.678.5.026.37:621.787.4

VELLER, V. A., Candidate of Technical Sciences, VENGARTEN, A. M.,
Candidate of Technical Sciences, GOMAN, G. M., Engineer, OSTANINA,
V. A., Engineer

"Fatigue Strength Increase of Rolled Shafts by Polymer Coating"

Moscow, Vestnik Mashinostroyeniya, No 1, 1970, pp 13-15

Abstract: Experimental data are presented on fatigue tests conducted on carbon steel shafts from 30 to 165 mm in diameter with a press fit, in order to evaluate the increase in the fatigue limit produced by surface rolling and by application of a polymer coating. The results show that the fatigue strength increases 1.5-2 times, and that the effectiveness of rolling increases with shaft diameter. The surface strengthening by rolling is being currently applied to propeller shafts on all ships in construction.

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Reel/Frame

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AP0046866

The effect of rolling on prevention of crack formation is being substantially smaller than on tensile strength. The formation of surface defects due to fretting-corrosion at the location of press-fits was observed on the ordinary and rolled samples. A polymer coating of the surface at the location of a press fit is one of the very effective procedure for lowering corrosion. A combination of rolling with polymer coating is highly recommended for reducing the intensity of fretting-corrosion.

The metallographic study of samples at the location of a press fit shows, that at the same stress levels, the application of a polymer coating substantially delays the formation of surface defects, caused by the fretting-corrosion, and by the same way, increases the durability of the part. The efficiency of polymer coating is tentatively explained by separation of contact surfaces, by protection of metallic surfaces from air action; by reduction of the stress along the edges of a press-fitted bushing.

19790183

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AP0046866

It is concluded that 1) the fatigue strength at the location of press fits increases 1.5-2 times, by using the surface rolling; and 2) the use of polymer coatings on rolled shafts at the location of press fits ensures an increase in fatigue strength and durability, and at first the decrease in fretting corrosion intensity. Original article has 1 figure and 2 tables.

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19790184

ali

USSR

UDC 535.211.539.216.2

URAZALIYEV, U. S., UKRAINSKIY, YU. M., GOMAN'KOV, L. M., and GALKIN, B. D.,
Moscow

"Crystal Structure and Chemical Composition of Thin Permalloy Films Produced by Laser Radiation Pulses in a Free Generation Mode"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 4, Jul-Aug 73, pp 151-152

Abstract: The crystal structure and chemical composition of thin permalloy films, produced by laser pulse radiation in the mode of free generation, were investigated for films made in a vacuum of 10^{-4} torr using a ruby laser with a pulse energy of approximately 4 joule and pulse time of approximately 450 microseconds. The exceptionally high rate of deposition of the film from laser radiation was noted and the crystal structure of the film resulted from the high kinetic energy of the vaporized atoms and heating of the substrate in the deposition process. It was found that the vacuum efficiency was 1-2 orders higher in laser radiation than in vacuum thermal vaporization and cathode spraying. Two bibliographic references.

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USSR

GOMARELI, M. I.

"One Class of Problems in Mathematical Programming"

Seminar In-ta Prikl. Mat. Tbilis. Un-t. Annotatsii Dokl. [Seminar of Institute of Applied Mathematics, Tbilisi University, Abstracts of Reports], 1972, No 6, pp 77-81 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V688 by S. Lebedev).

Translation: In estimating parameters based on observational data of a certain distribution, which is required in the practice of planning and prediction of specific economic processes, the following problem arises:

$$\min \left\{ \sum_{i=1}^m (\beta_i u_i^p + \alpha_i v_i^p) \mid \sum_{j=1}^n a_{ij} x_j + u_i - v_i = b_i; \right. \\ \left. x_j \geq 0, u_i \geq 0, v_i \geq 0 \right\}.$$

The duality relationships are written for it and its continuous analogue.

1/1

USSR

UDC 616.127-002.4-08.039.71:616-008.221.1.04-003.96

MEYERSON, F. Z., GOMAZKOV, O. A., and SHIMKOVICH, M. V., Laboratory of Experimental Cardiology, Institute of Normal and Pathological Physiology, Academy of Sciences USSR, Moscow

"Prophylactic Effect of Adaptation to Altitude Hypoxia on the Development of Ischemic Myocardial Necrosis"

Moscow, Kardiologiya, No 10, 1972, pp 37-43

Abstract: Rats were placed in a pressure chamber for 5 hours a day, 5 times a week, over a period of 40 days, after which myocardial necrosis was induced in adapted and nonadapted animals by ligating the left coronary artery. Two days later only 10 of 21 nonadapted animals were alive compared with 11 of 12 experimental animals (52 and 8.4% mortality, respectively). Measurement of the size of the necroses resulting from ligation of the artery showed them to be 35% smaller in adapted animals. Thirty minutes after ligation the force of myocardial contraction, as measured by systolic pressure, was essentially the same in both groups, but after 24 hours it was 2-1/2 to 3 times greater in experimental rats. The mechanism of the prophylactic effect of adaptation to hypoxia is based on changes in the biochemical and morphological processes involved in the transport and utilization of oxygen.

1/1

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USSR

VETLUTSKIY, V. N., GOMON, N. V.

"Calculation of the Boundary Layer on a Triangular Wing Washed by a Supersonic Air Stream at an Angle of Attack"

Teplo. i Massoperenos. T. 1. [Heat and Mass Transfer, Vol 1 -- Collection of Works], Minsk, 1972, pp 165-174, (Translated from Referativnyy Zhurnal, Mekhanika, No 10, 1972, Abstract No 10 B721, by A. V. Bashkin).

Translation: A theoretical study is presented of the development of a three-dimensional laminar boundary layer on a sharp cone, washed by a supersonic stream of gas at an angle of attack. Due to the conical nature of the external flow, integration of the Prandtl equations is reduced to the two-dimensional problem, which is solved numerically by the method of finite differences using an implicit system based on a 6-point model. As an example, a cone is studied with ellipticity factor $\delta = 3$ and peak angle $\chi = 75^\circ$, washed by a flow of an ideal gas at Mach number $M_\infty = 7$ and angle of attack $\alpha = 30^\circ$.

1/1

USSR

GOMAN, O. G. (Dniepropetrovsk)

"The Accelerated Supersonic Motion of a Plate at a Finite Angle of Attack"

Moscow, Mekhanika Zhidkosti i Gaza, No 4, Jul-Aug 70, pp 70-75

Abstract: The article deals with the supersonic unsteady motion of a plate at a finite (not infinitely small) angle of attack with an attached shock wave in an ideal gas. The laws of change of the velocity and angle of attack of the plate are assumed to be arbitrary, and the Strouhal numbers are assumed to be small. With the latter assumption, in the case of Mach numbers in the perturbed region that are not too close to unity, the prehistory of the motion is sufficiently well characterized by instantaneous values of the unsteadiness parameters and their derivatives. This fact makes it possible considerably to simplify the equation system which describes perturbed unsteady motion, and to obtain its analytic solution. 4 figures, 3 bibliographic entries.

1/1

1/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ORDERING OF THE NICKEL, IRON, COBALT ALLOYS IN THE GAMMA REGION -U-

AUTHOR--(04)-GOMANKOV, V.I., PUZEY, I.M., MALTSEV, E.I., PETRENKO, E.D.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, FEB. 1970, 29, (2), 429-431

DATE PUBLISHED----FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ORDERED ALLOY, ALLOY PHASE COMPOSITION, NEUTRON DIFFRACTION,
COBALT CONTAINING ALLOY, IRON NICKEL ALLOY, ALLOY COMPOSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3003/0345

STEP NO--UR/0126/70/029/002/0429/0431

CIRC ACCESSION NU--AP0129577

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129577

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHARACTERISTICS OF THE ORDERING PROCESS IN ALLOYS IN THE GAMMA REGION OF THE NI-FE-CO SYSTEM WERE STUDIED BY NEUTRON DIFFRACTION, WITH SPECIAL REF. TO THE SPECIFIC PART PLAYED BY CO IN THIS PROCESS. THE ORDERING CHARACTERISTICS ARE LARGELY DETERMINED BY THE DEVELOPMENT OF A SUPERSTRUCTURE OF THE NI SUB3 FE TYPE; THE ADDITION OF CO TENDS TO DISRUPT THIS SUPERSTRUCTURE BECAUSE THERE IS A STRONGER INTERACTION BETWEEN THE FE AND CO THAN BETWEEN THE FE AND NI.

UNCLASSIFIED

Pathology

USSR

UDC 615.217.22.015.45:612.173.3

GOMAZKOV, O. A., and SHIMKOVICH, M. V. Group of the Academician of the Academy of Medical Sciences, Prof. P. Ye. Lukomskiy, and Laboratory of Experimental Cardiology, Institute of Normal and Pathological Physiology, Academy Medical Sciences USSR, Moscow

"Change in the Contractile Function of the Heart Under the Influence of Isadrine (Isoproterenol) -- a Sympathomimetic Agent"

Moscow, Kardiologiya, No 4, 1970, pp 127-133

Abstract: A minute after subcutaneous injection of 50-75 mg/kg of novodrin (isoproterenol sulfate), a drop in blood pressure is observed in mice and also increased respiration and cardiac shifts. Hemodynamic shifts, shifts in oxygen consumption and EKG in rats were also studied after administration of large doses (80 mg/kg) of novodrin. The rapidly developing hypotension and simultaneous increase in oxygen consumption by the organism are apparently the main causes of necrotic lesions in the myocardium, which are accompanied by disturbances of the contractile functions of the heart. The force of contraction of the left ventricle is significantly decreased in systole and diastole. The maximum tension of the myocardial wall is decreased more than twofold. During the early stages of development of the drug effect, dystrophic and necrobiotic changes in myocardial fibers were noted, as

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USSR

GOMAZKOV, O. A. and SHIMKOVICH, M. V., Kardiologiya, No 4, 1970, pp 127-133

indicated by contracture and myocytolysis of myofibrils. At the peak of effect of the drug, there are massive hemorrhages in the papillary muscles, in the sub-cardial layers of the left ventricle, and in the interventricular septum. Such changes are characteristic of the injury of the contractile apparatus of the heart induced by proterenol, which has been observed previously both under clinical and experimental conditions.

USSR

UDC 612.27+612.014.4+612.58

MEYERSON, F. Z., and GOMAZKOV, O. A. Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR, Moscow

"The Effect of Adaptation to Altitude Hypoxia and Cold on the Metabolic Effect of Noradrenalin in Rats"

Leningrad, Zhurnal Evolyutsionnoy Biokhimii i Fiziologii, Vol 6, No 3, May/Jun 70, pp 276-281

Abstract: In experiments on white rats adapted to altitude hypoxia or to cold, a study was made of metabolic response to introduction of sympathomimetic agents. Conditioning of the animals to altitude hypoxia (5,500 m, 40 days, room temperature) had no substantial effect on the oxygen demand level of the organism, but completely eliminated the rise in oxygen consumption observed in control rats after noradrenalin administration. In rats adapted to cold for long periods (60 days, 0±5°), the activating effect of noradrenalin and isopropylnoradrenalin on oxygen demand by the organism was markedly increased. The toxic dose of isopropylnoradrenalin (50 mg/kg of body weight) induced considerably greater lethality and damage to the contractile function of the myocardium in these animals than in the control group.

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USSR

UDC 616.12-092.616-008.922.1.04

OGNAZOV, G. A., SHENKOVICH, M. V., and MEYERSON, V. E., Group of the USSR Academy of Medical Sciences of P. Ye. Lukomsky and Laboratory of Experimental Cardiology, Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR

"The Effect of Preliminary Conditioning to High-Altitude Hypoxia and Cold on the Development of Sympathomimetic Lesions of the Heart"

Moscow, Kardiologiya, No 2, 1970, pp 57-66

Abstract: The effects of conditioning to hypoxia and cold or resistance to the sympathomimetic agent isoproterenol and on changes in myocardial contractility were studied. A large loss of isoproterenol (60 mg/kg) killed 41% of rats conditioned to cold (daily exposure for 40 days to a temperature of 4-5°C), but only 17% of the controls. On the other hand, 100% of the animals conditioned to hypoxia (daily exposure for 40 days to a simulated altitude of 5000 m) survived injection of the drug. Myocardial contractility in the hypoxia-trained animals following injection of isoproterenol was indistinguishable from contractility in controls, but it deteriorated in cold-trained animals. The lowered resistance of

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USDA

SHIMIZU, O. A., et al., *Medew. Pharmacology*, 11, 2, 1961, pp. 27-30

these animals. No isoproterenol is ascribed to their increased
adrenergic reactivity, due to abnormally high oxygen consumption
induced by the drug.

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USSR

UDC 547.814'753.07

DZHAPARIDZE, K. G., MAISURADZE, D. P., GACHECHILADZE, G. G., and
GOMELAURI, E. S., Institute of Cybernetics, Acad. Sc. Georgian SSR, Tbilisi

"Synthesis and Some Physico-Chemical Properties of 6-Nitro-2H-Chromen-2-Spiro-
2'-N-Alkyl-3',3'-dimethylindolines"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 71, pp 775-777

Abstract: Indoline spirochromenes (spiropyrones) with various alkyl substituents on the nitrogen atom were synthesized. Two grams of 2,3,3-trimethylindoline alkyl iodide was decomposed with 5% aqueous base. The oil formed was extracted with ether, washed with water, ether was evaporated and the residue dissolved in ethanol. To this solution an equimolar quantity of 5-nitrosalicylaldehyde was added and refluxed for 2 hrs. After cooling, the pure product crystallized. Most of the compounds synthesized in this fashion were photochromic in the crystalline state. This phenomenon increased with increased length of the alkyl radical, due to better packing of the molecules in crystalline lattice. The melting point dropped as the chain of alkyl substituents increased in length.

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USSR

UDC: 621.378.529

GOMBERG, A. S. and RATNER, Ye. S., Candidates of Sciences

"Spectral Characteristics of a Semiconductor Laser Using InAs"

Leningrad, Optikomekhanicheskaya promyshlennost', No 4, 1972, pp 16-18

Abstract: For the purpose of estimating the conditions of propagation of laser radiation and of determining some of the laser's parameters not easily available for direct measurement, the spectral characteristics of the radiation are determined for the time interval of a single pulse. As the object of their experiments in this study, the authors used a semiconductor laser of InAs, with injection excitation and a radiation band of the order of 300 Å. For their measurements, they used the fast diffraction spectrometer type SS1DS, with a recording frequency of 10,000 spectra per second and a resolution of 6 Å. The width of the single pulse during which the spectrum was recorded was 500 μs; a specimen of the spectrum is reproduced. It was found that there are not only variations in the radiated power during the pulse, but that the shift of the radiation toward the longer waves increases with increasing injection current. The authors were assisted in the experiments by V. M. Mel'nikov.

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1/2 020

UNCLASSIFIED

PROCESSING DATE--16OCT70

TITLE--MONTE CARLO ALGORITHM FOR CALCULATING UNSTEADY FIELDS OF NEUTRONS
AND RADIATIVE CAPTURE GAMMA RAYS IN PROBLEMS OF NUCLEAR GEOPHYSICS --U-

AUTHOR--(03)-GCMERSHTADT, V.YA., DENISIK, S.A., LUKHMINSKIY, B.E.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. 1970, 28(1), 51

DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, EARTH SCIENCES AND
OCEANOGRAPHY

TOPIC TAGS--WELL LOGGING, MONTE CARLO METHOD, ALGORITHM, NEUTRON FLUX,
GAMMA RADIATION, RADIATIVE CAPTURE, NEUTRON ABSORPTION

CONTROL MARKING--NO RESTRICTIONS .

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/1246

STEP NO--UR/0089/70/028/001/0051/0051

CIRC ACCESSION NO--AP0115263

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0115263

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN EQUATION FOR CALCG. THE PROBABILITY THAT A N WOULD NOT BE CAPTURED AFTER A GIVEN NO . OF COLLISIONS IS PRESENTED AND IS USED IN CALCNS. OF THE SPACE TIME DISTRIBUTION OF N AND OF RADIATION CAPTURE GAMMA QUANTA IN CYLINDRICAL AND COAXIAL MEDIA (E.G., BOREHOLES FILLED WITH H SUB2 O OR OIL, OIL BEARING STRATA, ETC.). CALCNS. SHOW THAT THE PULSED (N, GAMMA) METHOD IS PREFERABLE TO PULSED (N, N) METHODS IN NUCLEAR GEOPHYSICS RESEARCH.

UNCLASSIFIED

USSR

UDC 621.314.58

TIKHOMENEV, B. N., KAMENEV, A. V., GOMOLA, G. G.

"Thyristor Pulse Converter for Electrical Rolling Stock With Dual Feed"

Tr. VNII zh.-d. transp. (Works of the All-Union Scientific-Research Institute of Railroad Transportation), 1970, Issue 416, pp 137-163 (from RZh-Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2B560)

Translation: A description and analysis is presented of the operation of a thyristor pulse converter which can maintain normal operation of a-c electric rolling stock, powered from a d-c catenary net, by using the same equipment and by maintaining the same power and traction properties as with an a-c net. The results are presented of an experimental investigation with the d-c and a-c supplies. The converter described satisfies the requirement for dual supply and assures a number of advantages over existing design. 22 illustrations, 2 tables, 3 references. I.R.

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1/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--THE CLINICAL PICTURE AND DIAGNOSIS OF TUBERCULOUS ALLERGIC LESIONS
OF THE EYE -U-

AUTHOR--GUMON, K.Z.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK OGTAL'MOLOGII, 1970, NR 3, PP 56-59

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TUBERCULOSIS, EYE DISEASE, ALLERGIC DISEASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0107

STEP NO--UR/0357/70/000/003/0056/0058

CIRC ACCESSION NO--AP0129364

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129364

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROPORTION OF TUBERCULOUS ALLERGIC FORMS AMONG TUBERCULOUS AFFECTIONS OF THE EYE IS ON THE RISE. THE SITE OF TUBERCULOUS ALLERGIC REACTIONS ON THE LEVEL OF THE EYES MAY LIE IN ANY OF THEIR TISSUES, BOTH IN THE ANTERIOR AND POSTERIOR PORTION. ALLERGIC REACTIONS ON THE EYE FUNDUS RUN MORE COMMONLY WITHOUT ANY DEFINITE SUBJECTIVE COMPLAINTS. EYE DISEASES OF THE TUBERCULOUS ALLERGIC ORIGIN ARE AN EXPRESSION OF AN ACTIVE EXTRAOCULAR TUBERCULOSIS EITHER INTRA OF EXTRATHORACIC ONE. NOT INFREQUENTLY THE OCULIST IDENTIFIES SUCH PATIENTS BY SEEING THE DEVELOPMENT OF PARASPECIFIC OCULAR REACTIONS (FIRST CLINICAL VISIBLE SIGNS). ON THE EMERGENCE OF TUBERCULOUS ALLERGIC REACTIONS IN THE EYE TISSUES THE PHTHISIATRIST MUST: A) ESTABLISH THE SOURCE OF ALLERGY WITH THE AID OF MODERN CLINICAL ROENTGENOLOGICAL AND LABORATORY METHODS, B) TO PUT SUCH PATIENTS ON THE REGISTRATION LIST AND REFER THEM TO PERTINENT GROUPS OF OBSERVATION ON THE DISPENSARY LEVEL; C) MAKE PROVISIONS FOR AN ADEQUATE COMPLEX MEDICARE, INCLUDING INPATIENT AND SANATORIUM TREATMENT IN ESTABLISHMENTS FOR MINOR FORMS OF TUBERCULOSIS. THE OCULIST HELPS TO EARLY RECOGNIZED SUCH PATIENTS, EFFECTUATES SUPERVISION OVER THEM, ORDERS LOCAL TREATMENT, AND TOGETHER WITH PHTHISIATRIST DECIDES LATER ON THE QUESTION AS TO THE ACTIVE NATURE OF THE PROCESS AND THE NEED FOR FURTHER THERAPY. FACILITY: KIEVSKIY GORODSKOY PROTIVOTUBERKULEZNYI DISPANSER.

UNCLASSIFIED

Entomology

USSR

UDC 576.895.77(571.65)

POLYAKOVA, P. Ye., GOMOYUNOVA, N. P., KIR'YASHKINA, L.A., and LEVINA, L. F.
Biological Institute, Siberian Branch of the Academy of Sciences USSR,
Novosibirsk

"Blood-Sucking Mosquitoes (Diptera, Culinae) of the Omolon River Basin"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Biologicheskikh Nauk, Vol 1, No 5, Apr 70, pp 93-98

Abstract: The phenology of imago and mature phases of mosquitoes and their larvae was studied in the basin of the middle section of the Omolon river. It was a rainy summer in 1968, and the mean temperature was 13.3°C. Only rarely was there a warm day with a temperature of up to 26°C. Seventeen mosquito species were studied, including their distribution and swarming in May-August. The mosquitoes attacked man in daily cycles. The greatest activity was observed during the morning and evening hours. Swarming of the species *A. communis* and *A. pullatus* takes place in the evening hours, and of *A. nigripes* in the daytime. Swarming lasts several hours, particularly in quiet weather at an atmospheric temperature of 8.5-16.5°C, and at a relative humidity of 77-85 percent.

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USSR

UDC 669.017

GOMOZOV, L. I.

"The Nature of the Increase in the Yield Point for BCC Metals at Reduced Temperatures"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 159-165

Translation: An increase in the thermic component of the yield point at temperatures lower than an average of $0.22_{m.p.}$ was characteristic for all BCC metals studied, including alkali metals, as well as metals having a high temperature BCC modification. One common feature of all these metals is asphericity (octahedral symmetry) of the interionic action potential, characteristic for ions with s^2p^6 (or d^6) configuration. The asphericity of the indirect (attraction) and direct (repulsion) action potentials of the ions apparently causes a significant approach of the ions at a dislocation nucleus, rapidly decreasing with increasing temperature. Estimates performed using the formula of Peierls and Navarro or on the assumption of the paired interaction (repulsion) of "conjugate" ions at the saddle point agree satisfactorily with experimental data for all metals studied with BCC $1/2$

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USSR

GOMOZOV, L. I., Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 159-165

lattice both as to the functional dependence on temperature and as to the numerical values. In correspondence with this model, the value of the increase in yield point for Mo and Ta is found as a function of the hydrostatic pressure. 2 Figures; 18 Bibliographic References.

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Nuclear Science and Technology

USSR

UDC 621.039.55:621.039.542.32

RAYETSKIY, V. M., ZAVGORODNIY, A. YA., and GOMCOZOV, L. I.

"Effect of Irradiation on Electrical Resistance of Uranium-Zirconium-Niobium Alloy"

Moscow, Atomnaya Energiya, Vol 29, No 5, Nov 70, pp 379-380

Abstract: Studies were made of uranium-8 at. percent zirconium-12 at. percent niobium alloy, which has a higher equilibrium gamma-state transition temperature (660°C) than an alloy of uranium with 20 at. percent molybdenum. Specimens were placed in ampoules and filled with lead-tin solder (melting point 183°C) at 200°C . Irradiation was carried out in an SM-2 reactor to an integrated flux of $\Phi_1 = 3 \cdot 10^{19}$ thermal neutrons/ cm^2 at 70°C and $\Phi_2 = 9 \cdot 10^{20}$ thermal neutrons/ cm^2 at 200°C . Electrical resistance was measured by the potentiometric method in the -196 to $+100^{\circ}\text{C}$ temperature range. Irradiation results in an increase in the mean temperature electrical-resistance coefficient.

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USSR

RAYETSKIY, V. M., et al., Atomnaya Energiya, Vol 29, No 5, Nov 70, pp 379-380

cient for uranium-zirconium-niobium alloy (negative for the initial state of the alloy). It becomes positive after irradiation with flux Φ_2 . There is a decrease in the electrical resistivity found at -196°C and an increase in the value found at $+100^\circ \text{C}$ with irradiation dose. Variations in the temperature dependence of the electrical resistance as a result of changes in the phase state of unirradiated uranium-zirconium-niobium alloy were determined in specimens cooled from the homogeneous state ($T = 800^\circ \text{C}$) at a rate of ~ 300 (water hardening), ~ 3 , and 0.1 deg/sec, as well as in specimens annealed at 500°C for 140 hours. Water hardening gave a homogeneous state, annealing at 500°C an equilibrium heterogeneous state. The mean temperature coefficient of the alloy increases with decreased cooling rate, reaching the greatest value after annealing at 500°C .

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USSR

RAYETSKIY, V. M., et al., Atomnaya Energiya, Vol 29, No 5, Nov 70, pp 379-380

A comparison of variations in the mean temperature resistance coefficient for thermal decomposition and irradiation indicates that the uranium-zirconium-niobium alloy decomposes under irradiation. Decomposition of the homogeneous alloy indicates that uranium fission events may promote not only homogenization, but also the initiation of decomposition centers and accelerated decomposition of unstable alloys.

The authors thank S. T. KONOBEYEVSKIY for his interest in and discussion of the work, and V. S. SANDAKOV and L. M. KISELEV for their assistance in the experiments.

3/3

1/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--SOLUBILITY OF ZIRCONIUM, NIOBIUM, AND MOLYBDENUM IN ALPHA URANIUM
-U-
AUTHOR--(03)-GOMOZOV, L.I., LYUTINA, E.M., IVANOV, O.S.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA AKADEMII NAUK USSR, METALLY, NO 2, MAR-APR 70,
PP 210-215
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--SOLUBILITY, ZIRCONIUM CONTAINING ALLOY, NIOBIUM CONTAINING
ALLOY, MOLYBDENUM CONTAINING ALLOY, URANIUM ALLOY, ENTHALPY, GRAIN SIZE
METAL RECRYSTALLIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/1601

STEP NO--UR/0370/70/000/002/0210/0215

CIRC ACCESSION NO--AP0120366

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--23OCT7

2/2 021

CIRC ACCESSION NO--AP0120366

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. A SERIES OF URANIUM ALLOYS, CONTAINING FROM 0.05 TO 2 AT . PERCENT OF ZIRCONIUM, NIOBIUM OR MOLYBDENUM, WERE MELTED TO DETERMINE TO SOLUBILITY OF THESE ALLOYING ELEMENTS IN URANIUM ALPHA-PHASE AT 550-660DEGREESC. THE INGOTS OBTAINED WERE SUBJECTED TO HOMOGENIZING ANNEALING FOR 50 HR AT 950DEGREESC, QUENCHED IN WATER, AND COLD ROLLED WITH REDUCTIONS OF 50PERCENT. THE PREPARED SPECIMENS WERE ANNEALED AT 550-660DEGREESC FOR 240-180 HR, AND SUBSEQUENTLY COOLED IN WATER. IT WAS FOUND THAT THE SOLUBILITY OF THESE ELEMENTS IN THE URANIUM ALPHA-BASE DECREASES WITH INCREASING ANNEALING TEMPERATURE, AND IN ANY CASE DOES NOT EXCEED 0.5 AT . PERCENT. THE RELATIVE PARTIAL ENTHALPIES OF SOLUTIONS OF ZIRCONIUM, NIOBIUM AND MOLYBDENUM ARE 15, 20.8, AND 36.8 KCAL-GAT, RESPECTIVELY. INTRODUCTION OF UP TO 0.2 AT . PERCENT OF THE ABOVE MENTIONED ELEMENTS INTO URANIUM LEADS TO A RAPID DROP OF RECOVERY RATE DURING ANNEALING AFTER COLD DEFORMATION, AND TO REDUCTION OF GRAIN SIZE TO 15-25 MICRONS DURING RECRYSTALLIZATION.

UNCLASSIFIED

USSR

UDC: 621.396.967

GOMZIN, V. N.

"On the Problem of Constructing a Two-Channel Direction-Tracking System With Selection of Moving Targets"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 4, Apr 72, p 903

Abstract: The author considers problems of constructing a two-channel target-direction tracking system with moving-target selection device. The moving target selection device is considered in the form of a Doppler frequency filter. It is shown that reference voltage must be used for systems with internal and external error. Factors which influence the accuracy of sum-difference and differential direction-tracking systems with selection of moving targets are analyzed. [Translation of abstract. Original article deposited at VINITI (No 3592 dep. 18 Oct 71, 11 pp, 5 illus.)].

1/1

1/2 C14 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--RESULTS OF CLINICAL TRIALS OF A AN ANTIARRHYTHMIC DRUG CARBAZIN,
ETHMOZIN -U-
AUTHOR--GCMZYAKOVA, T.G.
COUNTRY OF INFO--USSR
SOURCE--BRACHEENOVE DELO, 1970, NR 4, PP 62-64
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEART DISEASE, ARRYTHMIA, CARDIOVASCULAR DRUG/(U)ETHMOZIN
CARDIOVASCULAR DRUG, (U)CARBAZIN CARDIOVASCULAR DRUG

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3002/1695

STEP NO--UR/0475/70/000/004/0062/0064

CIRC ACCESSION NO--AP0129065

UNCLASSIFIED

2/2 C14

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0129065

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIRTY TWO PATIENTS WITH ISCHEMIC HEART DISEASE COMPLICATED BY EXTRASYSTOLE, PAROXYSMAL TACHYCARDIA (SUPRAVENTRICULAR AND VENTRICULAR) AND PAROXYSMAL CARDIAC FIBRILLATION WERE GIVEN A NEW ANTIARRHYTHMIC DRUG, CARBAZIN WHICH PROVED EFFICIENT IN THE PREVENTION OF TACHYSYSTOLE PAROXYSMS. THE DRUG WAS INEFFICIENT IN THE TREATMENT OF EXTRASYSTOLE. FACILITY: EKSPERIMENTAL'NOV KARDIOLOGII INSTITUTA IM. PAVLOVA, AN SSSR.

UNCLASSIFIED

USSR

UDC: 517.5

GONCHAR, A. A.; Mathematics Institute imeni V. A. Steklov,
Academy of Sciences of the USSR

"Concerning Piecewise-Polynomial Approximation"

Moscow, Matematicheskiye Zametki, Vol 11, No 2, Feb 72, pp
129-134

Abstract: Let f be a real function defined on the segment
 $\Delta = [0, 1]$ satisfying the conditions:

1. f is continuous on Δ ;
2. f admits limited analytical continuation into the
circle $K = \{z: |z - 1| < 1\}$.

The notation ω_f is used to denote the modulus of con-
tinuity on Δ . Using the symbol f to denote the continuation
of the function f into circle K as well, we assume that

$$M_f = \sup_{z \in K} |f(z)|.$$

For functions f with these properties, the best approximations

1/2

~USSR

GONCHAR, A. A., Matem. Zametki, Feb 72, pp 129-134

$R_n(f)$ approach zero, generally speaking, appreciably faster than the best approximations by polynomials $E_n(f)$. It is shown in this paper that estimates of the type

$$R_n(f) = O(\omega_1(e^{-\epsilon} V_n)) \quad R_n(r^2) = O(e^{-\epsilon} V_n)$$

are also true for the best piecewise-polynomial approximations of the corresponding functions. Bibliography of three titles.

2/2

- 26 -

USSR

UDC 577.150.4

MARDASHEV, S. R., Academician, Academy of Medical Sciences USSR, GONCHAR, N. A.,
and DABAGOV, N. S. Institute of Biological and Medical Chemistry, Academy of
Medical Sciences USSR, Moscow

"4-Imidazolyl-3-aminobutanone-2 -- a New Inhibitor of Bacterial Histidine Decarboxylase (HDC) from Micrococcus Sp. N."

Moscow, Doklady Akademii Nauk SSSR, Vol 189, No 4, pp 895-898

Abstract: 4-Imidazolyl-3-aminobutanone-2 was obtained with its derivative produced by amination (NH_3). In a closed, dark glass vessel, the crystals of the title compound are preserved indefinitely in a refrigerator. In presence of light and air the ketone undergoes a color change through yellow to dark. As an inhibitor it is specific against histidine decarboxylase. It also inhibits lysine decarboxylase by 50%, and aspartate decarboxylase by 40%. It does not react with glutamate decarboxylase nor with tyrosine decarboxylase. The aminated derivative is a weak inhibitor (25%).

The report from the Cardiology Institute of the Academy of Medical Sciences that the title compound and its derivatives, given i. v. to rats, caused a rise in blood pressure from 18-20 mm is of interest.

GONCHAR, R. A.

TRACKING -
Measuring
System

ANALYSIS OF TRACKING SYSTEMS WITH INFINITE COORDINATE OF
THE PRODUCT (OR QUOTIENT) OF DEPENDENT AND INDEPENDENT VARIABLES

R. A. GONCHAR, Candidate of Technical Sciences,
A. G. GONCHAR, Doctor of Technical Sciences

Introduction

The validity of tracking a moving target relative to flat or spherical (affine) space between the dependent and independent variables $x(t)$ is proved. The validity of the product or quotient of dependent and independent variables $y(t)$ is proved. This article is devoted to analysis of non-automatic regulation.

In Figure 1 we have the equivalent diagram of an automatic regulator which keeps the product or quotient of dependent and independent variables constant (the first system), and in Figure 2, the equivalent regulator which keeps the constant from dividing independent and dependent variables constant (second system).

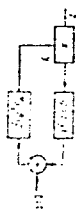


Figure 1. Equivalent diagram of the first system: x -- independent variable; y -- dependent variable; u -- control signal.

Figure 2. Equivalent diagram of the second system: x -- independent variable; y -- dependent variable; u -- control signal.

operator transfer function of the system $G(s)$ is constant and the output signal $u(t)$ is constant. The input with correlation time T_c is sufficiently less than the time constant of the system.

- 66 -

USSR

UDC 621.396.96:629.7.054'842

GONCHAR, R. A., SAYBEL', A. G.

"Analysis of Phase Radiotechymeters With Mutual Scale AFC in Interrogator and Responder"

Tr. Mosk. aviats. in-ta (Works of Moscow Aviation Institute), 1971, vyp. 207, pp 62-70 (from RZh-Radiotekhnika, No 12, Dec 71, Abstract No 12G70)

Translation: Differential equations are found for a phase radiotachymeter with mutual scale AFC in the challenger and the transponder. Conditions are determined for range finder stability taking account of a filter in the receiver channel which tracks the scale frequency. Expressions are found for dynamic errors of range measurement and the noise bands of the challenger and the transponder. One illustration, bibliography of one title. Resumé.

1/1

Adsorption

USSR

UDC 541.6

SHTIN, A. P., SHRYGIN, L. M., and GONCHAR, V. F.

"Change in the Structure and Adsorption Properties of Titanium Dioxide During Hydrothermal Treatment"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 47, No 2, Feb 73, p 485

Abstract: Treatment of TiO_2 samples in an autoclave at 50-350°C for 3 hrs leads to changes in phase composition and in the size of the primary particles. Up to 50°C the primary particles undergo diminution in size, resulting in increased specific surface area. As the temperature increases, roentgeno-amorphous TiO_2 converts to anatase and suddenly an increase in particle size begins to take place, lowering the specific surface area. The dimensions of the pores are changed during these processes, the specific volume remaining unaltered. The sorption capacity curves for Cu^{2+} and Ca^{2+} expressed as functions of the temperature, mimic closely the curves of specific surface changes discussed above.

1/1

USSR

UDC 621.382.2:539.1.074

LITOVCHENKO, P. G., ~~GONCHAR, V. G.~~, BARABASH, T. I., DEMIDOVA, G. M., and KIBKALO, T. I.

"Some Special Semiconductor Detector Types for Studying Nuclear Reactions"

Kiev, Poluprovodnikovaya tekhnika i mikroelektronika, No. 4, 1970, pp 122-129

Abstract: Noting that recent articles have been devoted to nuclear reaction detectors made of silicon compensated with lithium and having a sensitivity region thickness of up to 6 mm, the authors describe their experiments using charged particles of higher energy which entered the silicon to a depth of several millimeters. The detectors used by the authors had a resolution of 50-60 kev for alpha particles of Am^{243} with an energy of 5.8 Mev. The better detector specimens with an area of about 2 cm² had a resolution of 30 kev. The plot of the Am^{243} alpha particle spectrum detected by a No. 52 specimen is shown. To prepare detectors of this and other types, the authors used the brand BMD-1000 of silicon, which is obtained from the noncrucible zone of the melt and contains less than $2 \cdot 10^{16}$ oxygen atoms per cc, with the lifetime of
1/2

USSR

LITOVCHENKO, P. G., et al., Poluprovodnikovaya tekhnika i mikroelektronika, No 4, 1970, pp 122-129

minority carriers varying from 200-400 μ s and a dislocation concentration of less than $5 \cdot 10^4 \text{ cm}^{-2}$. A diagram of the cross-section construction of the planar detector as well as the diagrams of the ring and "hat" types is shown.

2/2

- 146 -

USSR

UDC 621.382.2:539.1.074

BARABASH, L. I. and CONCHER, V. G.

"dE/dx Detectors of Silicon Compensated by Lithium"

Kiev, Poluprovodnikovaya tekhnika i mikroelektronika, No. 4, 1970,
pp 69-77.

Abstract: A discussion of semiconductor detectors used in the study of nuclear reactions by the so-called dE/dx X E method is given. The authors describe experiments for making dE/dx detectors from silicon compensated by lithium. The first results they obtained from detectors made by this method are described in an earlier article they published (Radiatsionnaya fizika nemetallicheskikh kristallov -- Radiation Physics of Nonmetallic Crystals -- published by "Naukovaya dumka," Kiev, 1967). The present paper gives further experimental results in the use of the detectors for the study of nuclear reactions. The experiments used detectors made of p-type silicon with a specific resistance of 1000 ohm·cm, a dislocation density of about 10^4 cm⁻², a minority carrier lifetime of about 200 μs, and an oxygen concentration of about $5 \cdot 10^{19}$ cm⁻³. A diagram showing the construction of the dE/dx detector is given and its volt-ampere characteristics are plotted. The results show that such detectors can be successfully used for studying nuclear effects.

1/1

1/2 039 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--MECHANICAL PROPERTIES OF STRUCTURAL STEELS AFTER NORMAL HARDENING
AND AUSTEMPERING -U-
AUTHOR--USHAKOV, V.G., GONCHAR, V.N., SHILKOVA, T.S., SHTEYNBERG, M.M.,
FILATOV, V.I.
COUNTRY OF INFO--USSR
SOURCE--METALLOVED. TERM. OBRAB. METAL. 1970, (2) 2-5
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--MECHANICAL PROPERTY, ISOTHERMAL TRANSFORMATION, METAL
HARDENING, ALLOY DESIGNATION, LOW ALLOY STEEL, STRUCTURAL STEEL, CRACK
PROPAGATION, METAL HEAT TREATMENT, AUSTENITE, BRITTLE
FRACTURE/(U)30KHGSN2A LOW ALLOY STEEL, (U)30KHGSNMA LOW ALLOY STEEL,
(U)30KHGSN2MA LOW ALLOY STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1988/1307

STEP NO--UR/0129/70/000/002/0002/0005

CIPC ACCESSION NO--AP0106084

UNCLASSIFIED

2/2 039

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106084

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF ISOTHERMAL DECOMP. OF SUPERCOOLED AUSTENITE WAS STUDIED TO ESTABLISH THE OPTIMAL AREA OF ISOTHERMAL HARDENING FOR STEELS 30KHGSN2A, 30KHGSNMA, AND 30KHGSN2MA. THE MECH. PROPERTIES OF THE STEELS, PREPD. UNDER INDUSTRIAL CONDITIONS, WERE STUDIED WITH DEPENDENCE ON TEMP. AND THE TIME HELD IN THE HOT MEDIUM AS WELL AS THE TEMP. OF THE SUBSEQUENT ANNEAL. THE MECH. PROPERTIES FOLLOWING ISOTHERMAL HARDENING WERE COMPARED WITH THE PROPERTIES FOLLOWING NORMAL HARDENING AND ANNEAL. UNDER SIMILAR CONDITIONS, STRENGTH PROPERTIES OF THE 3 STEELS, ISOTHERMALLY HARDENED, SHOW LESS TENDENCY TO BRITTLE FRACTURE THAN FOLLOWING NORMAL HARDENING AND ANNEAL, SINCE IN THE LATTER INSTANCE, ANNEAL COINCIDES WITH DEVELOPMENT OF BRITTLINESS. ISOTHERMAL HARDENING OF THE STUDIED STEELS INCREASES THE FUNCTION OF CRACK PROPAGATION AS COMPARED WITH NORMAL TEMPER AND ANNEAL AT SIMILAR STRENGTHS.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--HYDROGENATION PURIFICATION OF LIQUID PARAFFINS -U-

AUTHOR-(104)-GONCHARENKO, A.D., MARTYNNENKO, A.G., VOLKOV, A.I., VOVK, L.M.

COUNTRY OF INFO--USSR

SOURCE--NEFTEPEREAB. NEFTEKHIM. (MOSCOW) 1970, (3), 36-8

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HYDROGENATION, AROMATIC HYDROCARBON, CATALYST, SULFIDE,
CHEMICAL PURIFICATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2048

STEP NO--UR/0318/70/000/003/0036/0038

CIRC ACCESSION NO--AP0125636

UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125636

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HYDROGENATION AT 0.25-0.5 HR PRIME
NEGATIVE1 AND 280-350DEGREES OF AROMATIC HYDROCARBONS (3.1PERCENT) IN
PARAFFIN, D SUB20 0.7922, INITIAL B.P. 270DEGREES, 10, 50, 70, 90, AND
95PERCENT B. 287DEGREES, 315DEGREES, 331DEGREES, 354DEGREES, AND
365DEGREES, M. 23DEGREES, AND CONTG. 0.025PERCENT S WAS MAX. (90PERCENT)
ON WS SUB2,NIS,FES CATALYST 3076 WITH 2000 L. H PER L. AT 50 ATM WHEN
THE VOL. INPUT RATE WAS 0.25 HR PRIME NEGATIVE1 AND THE TEMP. WAS
325DEGREES. AT 60-90 ATM., AROMATIC HYDROCARBON HYDROGENATION WAS
100PERCENT WITH 1600 L. H PER L. AT 325DEGREES AND A RATE OF 0.3 HR
PRIME NEGATIVE1 FOR PARAFFIN D SUB20 0.7850, INITIAL B.P. 276DEGREES, 50
AND 95PERCENT B. 300DEGREES AND 340DEGREES, M. 22DEGREES, AND CONTG.
0.024PERCENT S AND 1.7PERCENT AROMATIC HYDROCARBONS.

UNCLASSIFIED

USSR

UDC 535

GONCHARENKO, A. M., Corresponding Member of the BSSR Academy of Sciences,
Mogilev Affiliate of the Institute of Physics of the BSSR Academy of Sciences

"On the Theory of Light Beams in Lenticular Media"

Minsk, Doklady Akademii Nauk BSSR, Vol 17 No 10, Oct '73, pp 902-904

Abstract: The author investigates the propagation of Gaussian light beams in nonhomogeneous lenticular media. It is shown that the dimensions, shape, and curvature of the phase surface of the beam depend on the nonuniformity of permittivity in the transverse plane. Only the phase velocity is affected by longitudinal nonuniformity. The transverse dimension of the beam varies with depth of penetration into the medium.

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USSR

UDC 532.516

GONCHARENKO, B. N., URINTSEV, A. L.

"Stability of Motion of Liquid Caused by Thermocapillary Forces"

Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 6, 1971, pp 94-98.

ABSTRACT: The problem is studied of the stability of the plane parallel flow of a viscous fluid in a layer with a free boundary under weightless conditions. The motion of the fluid results from the dependence of surface tension on temperature. The precise solution for an unperturbed boundary is produced by the same method used in an earlier work, but with a more general boundary condition for temperature. The study of stability is performed by the method of slight oscillations, considering perturbation of the free boundary. The asymptotes of long waves and low Reynolds numbers are studied, and instability conditions determined.

1/1

- 47 -

USSR

UDC: 533.9.07

BELIKOV, A. G., GONCHARENKO, V. P., GONCHARENKO, D. K., DEREPOVSKIY, N. T.,
SAFRONOV, B. G., KHIZHNYAK, N. A.

"Energy Characteristics of a Coaxial Plasma Source"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 41, No 9, Sep 71, pp 1881-1886

Abstract: Some considerations are presented on selecting the parameters of a coaxial plasma source. On the basis of this preliminary theoretical study, a plasma source is determined and its energy characteristics are experimentally investigated. It is shown that plasmoid energy increases in proportion to the energy stored in the battery of the plasma source. The total plasmoid energy is greater than 1 kJ. It is shown that pure hydrogen plasmoids can be produced. Eight figures, bibliography of five titles.

1/1

USSR

UDC 539.67

KRISHTAL, M. A., VYEOYSECHIK, M. A., VODOP'YANOV, V. N., GOLOVIN, S. A.,
MOKROV, A. P., and GONCHARENKO, I. A.

"Dislocation Damping and Study of Dislocation Structure and Mobility Along the Dislocation Tubes"

Sb. "Vnutrenneye treniye v metallicheskih materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka," 1970, pp 85-90

Abstract: The effect of weakly soluble impurities and their mobility on stress in surface layers and upon formation of a dislocation network before the diffusion front is studied. The change in dislocation structure is investigated by internal friction time dependence. At the same time, the additional impurities precipitation upon dislocations was considered in the recovery process of Cu-La, Cu-Li, and Cu-B alloys. An increased dislocation density in the diffusion zone was studied on an Fe-In system. Diffusion equations for impurity atoms along the dislocation, its solution, and analysis are presented. The described model works in dilute solutions with impurity concentrations less than 0.05% and at temperatures lower than those corresponding to the formation of Cottrell's atmospheres. 1 table. 5 figures, 3 references.

1/1

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1/2 019 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ELECTRON MICROSCOPE STUDY OF THE PRECIPITATION OF PHASES FROM A
SUPERSATURATED SOLID SOLUTION, OF BORON IN IRON -U-
AUTHOR-(03)-KRISHTAL, M.A., GONCHARENKO, I.A., SVOBODOV, A.N.
COUNTRY OF INFO--USSR
SOURCE--METALLOVEDENIE I TERM. OBRABOT. METALLOV. 1970, (3), 53-54
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--ELECTRON MICROSCOPE, SOLID SOLUTION, IRON ALLOY, BORON
CONTAINING ALLOY, BORON INTENSIFIED STEEL, CRYSTAL DISLOCATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0929 STEP NO--UR/0129/70/000/003/0053/0054
CIRC ACCESSION NO--AP0133018
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0133018

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CHANGES TAKING PLACE IN THE STRUCTURE OF ARMCO FE (QUENCHED FROM 725 AND THERMALLY AGED AT 200DEGREESC FOR VARIOUS PERIODS) AND IN THAT OF AN FE-B ALLOY (COLLED SLOWLY FROM 1000DEGREESC) AS A RESULT OF REARRANGEMENTS OF THE DISLOCATION STRUCTURE AND THE PRECIPITATION OF EXCESS PHASES FROM THE SUPERSATURATED SOLID SOLUTION WERE FOLLOWED IN THE ELECTRON MICROSCOPE. IN THE CASE OF THE ALLOY, BORIDES PRECIPITATED FROM THE SOLID SOLUTION AS A RESULT OF THE CHANGE IN SOLUBILITY ON COOLING WERE CLEARLY VISIBLE UNDER THE MICROSCOPE; THEY TENDED TO DEVELOP ALONG INDIVIDUAL DISLOCATIONS, GROWING PREFERENTIALLY IN THE (110) DIRECTION.

UNCLASSIFIED

1/2 035 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--COLD SETTING ADHESIVES FOR CEMENTING APPARATUS AND PIPES -U-

AUTHOR--(02)-YAZON, Z.P., GONCHARENKO, O.P. G

COUNTRY OF INFO--USSR

SOURCE--KHIM. PROM. UKR. 1970, (2), 62-3

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ADHESIVE, POLYACRYLATE RESIN, GLASS FIBER, REINFORCED PLASTIC,
PIPE, POLYMER BINDER, COBALT COMPOUND, MANGANESE COMPOUND/(U)TGM3
ACRYLATE RES N, (U)TGMF11 ACRYLATE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3008/0856

STEP NO--UR/0436/70/000/002/0062/0063

CIRC ACCESSION NO--AP0137884

UNCLASSIFIED

2/2 035

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137884

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COLD SETTING ADHESIVES WERE PREPD. FROM COMPN. 311 (A MIXT. OF POLYESTER ACRYLATE R SINS, E.G. TGM 3 AND TGMF 11), CO AND MN RESINATES AND TALC. GLASS FIBER REINFORCED PLASTIC PIPES BONDED WITH THE ADHESIVES CITED HAD GOOD CHEM. STABILITY IN VARIOUS CORROSIVE MEDIA. FACILITY: OKBSP, SEVERODONETSK, USSR.

UNCLASSIFIED

USSR

UDC 678.029.43

SHISHKIN, V. A., Candidate of Technical Sciences, TROSTYANSKAYA, YE. B., Doctor of Technical Sciences, GONCHARENKO, V. A., Engineer, Moscow Aviation Technological Institute, BROVAK, G. V., Candidate of Technical Sciences, and IL'IN, V. M., Engineer, Central Scientific Research Institute of Automobiles and Automobile Engines

"Chemical Welding of Hardened Plastics for the Mass Production of Large-Scale Products"

Kiev, Avtomaticheskaya Svarka, No 12 (249), Dec 73, pp 59-62

Abstract: The authors describe in this article the results of research on the chemical welding of hardened polymer materials such as grades AP-66-151 and AP-65-101 using high-frequency heating. These materials are used for the manufacture of parts for automobile bodies and interiors. This high-frequency heating not only allows intensifying the welding process but also creating a new one, that is, point welding. A seam produced by such welding has comparatively higher strength and is distinguished by good wear resistance in operation. The article contains 2 figures, 2 tables, and 5 bibliographic references.

1/1

1/2 032 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--CHOICE OF OPTIMAL REGIMES FOR SMOOTHING FACE SURFACES OF ALUMINUM
PISTON VALVES -U-
AUTHOR--(02)-CUBANEV, A.P., GONCHARENKO, V.G. G
COUNTRY OF INFO--USSR
SOURCE--TR. SARATOVSK. IN-TA MEKHANIZ. S. KH. (TRANSACTIONS OF THE SARATOV
REFERENCE--KLEPERATIVNYY ZHURNALPOVIGATELI VNUTRENNEGO SGORANIYA, NO 4,
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR, PROPULSION
AND FUELS
TOPIC TAGS--SURFACE PROPERTY, ALUMINUM, METAL POLISHING, METAL GRINDING,
TRACTOR, CARGO TRUCK, INTERNAL COMBUSTION ENGINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO-----FD70/605031/FC6 STEP NO--UR/0000/70/000/042/0049/0055

CIRC ACCESSION NO--ARC141988

UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE -1108070

CIRC ACCESSION NO--AR0141988

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FORCE OF SMOOTHING STRONGLY AFFECTS SURFACE ROUGHNESS. SMALL SMOOTHING FORCE DOES NOT ENSURE ADEQUATE DEFORMATION OF THE SURFACE LAYER, LEAVING TRACES FROM PREVIOUS MACHINING. AN EXTREME INCREASE IN FORCE LEADS TO WORSENING OF FINISH AND EVEN TO FAILURE OF SURFACE LAYER REHARDENING. REPEATED PASSES AFFORD ONLY A SLIGHT RISE IN SURFACE FINISH CLASS. REDUCTION OF ROUGHNESS IS OBSERVED UP TO FIVE PASSES. FURTHER PASSES DETERIORATE THE SURFACE CONDITION AND LEAD TO REHARDENING. THE SURFACE FINISH CLASS AFTER HARDENING IS DETERMINED BY THE QUALITY OF THE PREVIOUSLY PREPARED SURFACE. REDUCTION OF ORIGINAL ROUGHNESS LEADS OF COURSE TO LESSER FINAL ROUGHNESS; HOWEVER, THE MORE PLASTIC THE METAL, THE LESS DOES ORIGINAL ROUGHNESS AFFECT FINAL ROUGHNESS. SURFACE ROUGHNESS DEPENDS ONLY SLIGHTLY ON SMOOTHING RATE. IN CHOOSING RATES, MACHINING PRODUCTIVITY MUST PRIMARILY BE TAKEN INTO ACCOUNT, AS WELL AS THE POSSIBILITIES OF THE MACHINE TOOL, HAND TOOL, AND THE ACTUAL SMOOTHING PROCEDURE ITSELF WITH THE LARGE NUMBER OF PASSES (UP TO FIVE). AS TO ITS RANK IN THE TECHNOLOGICAL PROCESS, SMOOTHING IS COMPARABLE WITH SUCH MACHINING METHODS AS SUPERFINISH, MICROHONING, POLISHING, FINAL GRINDING, AND SO ON. SMOOTHING IS A MACHINING METHOD THAT IS APPLICABLE BOTH IN MASS AND LARGE LOT, AS WELL AS IN CUSTOM AND SMALL LOT PRODUCTION. THERE ARE GROUNDS TO CLAIM THAT THE SERVICE LIFE OF THE COUPLING PISTON RINGS PISTON SLEEVE OF TRUCK TRACTOR ENGINES CAN BE MARKEDLY EXTENDED BY SMOOTHING DUE TO HIGHER FINISH AND HARDNESS OF FACE SURFACES OF GROOVES.

UNCLASSIFIED

1/2 035 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--TESTING OF THE PLASTIC COATING ON METAL SURFACES OF APPARATUS -U-

AUTHOR--(03)--LURACH, YU.YE., PALEVSKIY, V.V., GUNCHARENKO, V.V.

COUNTRY OF INFO--USSR

SOURCE--KFIH. PRGM. UKR. 1970, (2), 48-50

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PLASTIC COATING, ELECTRIC PROPERTY, EPOXY RESIN, METAL
CONTAINING POLYMER, NICKEL, CURING AGENT, METAL COATING, TEST METHOD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3005/0038

STEP NO--UR/0436/70/000/002/0048/0050

CIRC ACCESSION NO--AP0132333

UNCLASSIFIED

2/2 035

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NC--AP0132333

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GREEN EPOXY ENAMEL E-5, FILLED
WITH 43-66PERCENT NI DUST AND CURED WITH 10PERCENT H SUB2 NICH SUB2)
SUB6 NH SUB2 SOLN. IN ALC., WAS READILY DEPOSITED BY SPRAYING ON LAB.
APP. THE HARDENED COATING (AT 85-120DEGREES) HAD GOOD ELEC. PROPERTIES.

UNCLASSIFIED

USSR

UDC: 533.9.07

BELIKOV, A. G., GONCHARENKO, V. P., GONCHARENKO, D. K., DEREPOVSKIY, N. T.,
SAFRONOV, B. G., KHIZHNYAK, N. A.

"Energy Characteristics of a Coaxial Plasma Source"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 41, No 9, Sep 71, pp 1881-1886

Abstract: Some considerations are presented on selecting the parameters of a coaxial plasma source. On the basis of this preliminary theoretical study, a plasma source is determined and its energy characteristics are experimentally investigated. It is shown that plasmoid energy increases in proportion to the energy stored in the battery of the plasma source. The total plasmoid energy is greater than 1 kJ. It is shown that pure hydrogen plasmoids can be produced. Eight figures, bibliography of five titles.

1/1

1/2 009 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--REDUCING EFFECT OF ALKALI METAL HYDROXIDES ON OSMIUM TETRAOXIDE IN
AQUEOUS SOLUTIONS -U-
AUTHOR-(02)-BARDIN, M.B., GONCHARENKO, V.P.
COUNTRY OF INFO--USSR
SOURCE--ZH. NEORG. KHIM. 1970, 15(2), 490-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL REDUCTION, ALKALI METAL HYDROXIDE, AQUEOUS SOLUTION,
OSMIUM COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0793 STEP NO--UR/0078/70/015/002/0490/0495
CIRC ACCESSION NO--AP0104239
UNCLASSIFIED

2/2 909

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104239

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN ALKALI HYDROXIDE SOLNS. OSO
SUB4 WAS REDUCED TO THE RED OS(VI) ION (OSO SUB2 (OH) SUB4 PRIME
NEGATIVE2, VIA THE INTERMEDIATE (OSO SUB4 (OH) SUB2) PRIME NEGATIVE2.

UNCLASSIFIED

USSR

UDC 535.312

GONCHARENKO, YE. N., Candidate of Technical Sciences

"A Telescopic System Consisting of Two Conical Reflecting Surfaces"

Abstract: A Geometrical theory for the construction of a telescopic system, composed of two conical reflecting surfaces, is presented. Formulas are given for calculating the design elements and the astigmatism of a telescopic system consisting of two conical mirrors. A mathematical example of the calculation of a panoramic telescopic conical attachment to a photograph lens is presented. Such a system is of interest in the development of optical devices for simultaneous panoramic survey or photography of the entire horizon. Four figures, 1 table, 3 references.

1/1

USSR

UDC 577.3

GONCHARENKO, YE. N., and BRIYEDIS, I.

"Mechanisms by Which Histamine Concentration in Tissues Increases in the Presence of Radio-Protective Compounds"

Moscow, Biologicheskiye Nauki, No 10, 1971, pp 48-50

Abstract: One of the protective reactions which radio-protective compounds or exposure to hypoxic hypoxia induce in the body -- a rise in the concentration of histamine -- was investigated on white rats which were administered aqueous solutions of beta-mercaptoethylamine (MEA) or kept in a barochamber at an atmospheric pressure of 215 mm Hg for 2 minutes. Determinations performed on tissue samples 10-15 minutes later revealed a two- to four-fold increase in decarboxylase activity in the skin, stomach, and kidneys after administration of MEA and in the skin and stomach after exposure to hypoxia, as well as a significant though less pronounced decrease in the activity of diaminoxidase in the skin, stomach, and kidneys. It is concluded that the increase in histamine concentration is due mainly to an accelerated formation of new histamine through enhanced decarboxylation of histidine and, in a lesser degree, to decelerated destruction of histamine by diaminoxidase.

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USSR

UDC 577.391

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"Mechanisms of Change in Serotonin Content of Irradiated Animal Tissues"

Moscow, Biologicheskoye Nauki, No 12, 1970, pp 41-44

Abstract: In irradiated rats (1,000 rad), 5-hydroxytryptophan decarboxylase activity increased in the liver, small intestine, and brain 30 min and 24 hours after exposure and then sharply decreased in all organs. Monoamine oxidase activity decreased in the gastrointestinal tract and liver of irradiated animals, but remained within normal limits in the brain. The formation of lipid radiotoxins is apparently the cause of impairment of enzymatic activity. By way of confirmation, injection of rats with lipid radiotoxins resulted in an increase in both the serotonin content of intestine, liver, and brain tissues and in 5-hydroxytryptophan decarboxylase activity. In the terminal period, the serotonin content decreased sharply as did 5-H activity.

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Radiobiology

USSR

UDC: 621.039.58+615.7

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"The role of Antiradiation Agents in Creating the Biochemical Background of Radioresistance"

Moscow, Zhurnal Obshchey Biologii, Vol 32, No 1, Jan/Feb 71, pp 13-26

Abstract: Experiments were performed on rats to test the assumption that changes in the content of biogenic amines, (E.G., serotonin and histamine) and in endogenous radiosensitizing substances (lipid oxidation products) in the organs and tissues of animals which have received radioprophylactic agents may be one of the factors responsible for creating the biochemical background of radioresistance. Experimental results showed that the injection of such drugs as AET, cystamine, and cysteine. 10 min before whole-body irradiation markedly increased the amount of serotonin and histamine in the small intestine, stomach, and other tissues and, at the same time, decreased the activity of lipid oxidation products (either by decreasing the amount of oxidation products of higher unsaturated fatty acids, in particular the peroxides, or by increasing the amount of their inhibitors, the phospholipids).

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UDC 577.391

USSR

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"The Role of Endogenous Histamine in the Radioprotective Action of Radioprotectors"

Moscow, Doklady Akademii Nauk, USSR, Vol 191, No 4, 1970, pp 948-950

Translation: It was proposed earlier (1, 2) that one possible mechanism of the action of radioprotectors is based on their ability to lower the content of toxic lipids in the cells, and to liberate "endogenous radioprotectors".

Experimental data are reported showing that aminoethiols are capable of increasing the levels of one such "endogenous radioprotector" -- serotonin⁽²⁾. This paper describes an investigation of changes in the levels of another biologically active compound -- histamine -- under the influence of administered radioprotectors. White male rats were used in the experiment (body weight 120-150g). The animals were injected intraperitoneally with aqueous solutions of the radioprotectors, and after 10-20 min the content of free and total histamine in tissues was determined⁽³⁾.

The so-called f.d.d. at LD_{50/30} (i.e., factor of decreased irradiation dose resulting in 50% animal deaths in 30 days) was taken as the criterion of the protective action of the compounds studied. The radioprotective compounds (AET --

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GONCHARENKO, YE. N., et al., Doklady Akademii Nauk, USSR, Vol 191, No 4, 1970, pp 948-950

aminoethyl isothiuronium, MEA -- mercaptoethylamine, cystamine, cysteine, serotonin, and snake venom) and control materials (serine and 0.85% NaCl solution) were injected intraperitoneally 10-15 min prior to a single total irradiation of animals (dose range -- 400-1400 rads) on a GUBE-800 apparatus (dose rate was 50 rad/min). Another criterion of the effectiveness of radioprotectors was ΔE_h -- lowering of the oxidation-reduction potential level, registered on a platinum needle electrode inserted subcutaneously into the rats (4,5).

Table 1 shows that injecting the rats with highly effective radioprotectors (f.d.d. 1.5; $\Delta E_h = -150$ mv and larger drop) results in considerable increase of histamine in tissues. This is especially noticeable in the case of "total" histamine. The tissues containing higher amounts of histamine in control groups (skin, stomach) are capable of accumulating large quantities of histamine (in absolute figures).

Snake venom has little protective effect (f.d.d. 1.2). Rats injected with snake venom showed increased histamine levels in skin and stomach, and significant decrease in liver and kidneys. It is interesting that serine (control), which is not radioprotective, but whose structure is similar to the active aminothiols studied, caused no significant change in the content of free and total histamine.

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USSR

CONCHARENKO, YE. N., et al., Doklady Akademii N , USSR, Vol 191, No 4, 1970,
pp 948-950

Increase in the free and total histamine in the tissues indicates liberation of endogenous histamine under the influence of radioprophylactic compounds, and also synthesis of histamine.

Thus the data obtained support the proposal that "endogenous radioprotectors" may be accumulated in the organism under the influence of radioprotectors which may be capable of increasing radioresistance of the animals (2).

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USSR

UDC 621.0.39.58+615.7

KUDRYASHOV, Yu. B., GONCHARENKO, Ye. N., DEYEV, L. I., GORSKAYA, T. G., and SAMOYLIKOVA, T. I., Moscow State University imeni M. V. Lomonosov

"Reduction of Endogenous Radiosensitizers, LTV [Lipid Toxic Substances], as One of the Mechanisms of the Radioprophylactic Effect"

Moscow, Doklady Akademii Nauk SSSR, Vol 195, No 1, 1970, pp 206-208

Abstract: A study was made of the decrease in LTV activity in tissues of white rats after introduction of highly effective radioprotectors. The same effect as is observed with hypoxic hypoxia was found. The drop in LTV activity was accompanied by a similar decrease in the tissues or by an increased inhibitor content. It was determined that the shifts observed in the period of maximum radioresistance (15 minutes) are attenuated and expire after 4-6 hours. One of the possible mechanisms for the effect produced by radioprotectors may be the reduction in the content of biogenic radiosensitizers during the period of enhanced radioresistance associated with hypoxia or with the injection of radioprotectors (such as AET, MEA).

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1/2 049 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--ROLE OF ENDOGENOUS HISTAMINE IN THE RADIATION SHIELDING ACTION OF
RADIOPROTECTORS -U-
AUTHOR--(03)-GONCHARENKO, YE.N., KUDRYASHOV, YU.B., BRIEDIS, I.
COUNTRY OF INFO--USSR
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SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, NUCLEAR SCIENCE AND
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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AET (AMINOETHYLISOTHIURONIUM), CYSTEAMINE, CYSTAMINE, CYSTEINE, SEROTONIN, AND TO A LESSER EXTENT, VIPERA LEBETINE VENOM, ADMINISTERED I.P. TO RATS 10-15 MIN BEFORE WHOLE BODY IRRADN. (400-1400 RAD) EXERTED RADIOPROTECTOR ACTION AND INCREASED THE LEVEL OF HISTAMINE IN THE TISSUES, ESP. IN THE SKIN AND STOMACH. THIS SUGGESTS A POSSIBLE ROLE OF ENDOGENOUS HISTAMINE IN INCREASING RADIORESISTANCE IN ANIMALS. FACILITY: MOSK. GUS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

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TITLE--ROLE OF BIOLOGICALLY ACTIVE SUBSTANCES, RADIOTOXINS, IN RADIATION
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ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. RECENT STUDIES ON THE FORMATION AND THE BIOL. ROLE OF RADIOTOXINS ARE DISCUSSED. PRIMARY RADIOTOXINS (LIPID AND QUINONE LIKE) AND SECONDARY RADIOTOXINS (BREAKDOWN PRODUCTS OF PROTEINS, LIKE HISTAMINE AND CHOLINE) AS WELL AS FORMATION OF RADIOTOXIN COMPLEXES CAUSING THE "RADIOTOXIC EFFECT" AND THE ROLE OF EACH INDIVIDUAL TOXIN ARE CONSIDERED. STUDIES ON THE ROLE OF OXIDN. PRODUCTS OF UNSATD. FATTY ACIDS ARE DISCUSSED. FACILITY: BIOL.-PCCHV. FAK., MOSK. GUS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

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